ES-A - Develop Significant Amount of Renewable Energy Resources

Benefit/Cost of reducing CO_2e:

AZ: 116 MMt between 2007-2020; 10.2% of 2020 emissions; $6/ton
NM: 26 MMt between 2007-2020; 5.2% of 2020 emissions; $8/ton
MT: 16.9 MMt between 2007-2020; 5.6% of 2020 emissions; $3/ton

ES-1 Renewable Portfolio Standard

Assessment: High Priority - Bin B

A renewable portfolio standard (RPS) is a requirement that utilities must supply a certain, fixed percentage of electricity from an eligible renewable energy source. About 20 states currently have an RPS in place. Some states have expanded that notion to include an environmental portfolio standard (EPS) that allows energy efficiency as an eligible resource. In some cases, utilities can also meet their portfolio requirements by purchasing Renewable Energy Certificates (RECs) from eligible renewable energy projects.

ES-5 Create Renewable Energy Development Zones

Assessment: High Priority - Bin B

The establishment of renewable energy development zones would serve two purposes. First, enhance development through the reduction of zoning, siting and other regulatory barriers to renewable resources. This is applicable to transmission line capacity which is one of the largest hurdles to renewable development. Second, provide economic incentives within the development, similar to enterprise zones.

ES-4 Green Power Purchases and Marketing

Assessment: Medium Priority - Bin A

Green Power refers to electricity from environmentally preferred sources such as renewables. These programs allow consumers to purchase "green tags" along with their electricity ensuring that a quantity that a quantity of electricity equal to their purchase was produced from renewable resources. In addition, State government could use a green program to purchase a portion of their energy needs from renewable sources.

ES-2 Public Benefit Charge

Assessment: High Priority - Bin B

A public benefits charge is a fee on utility customers based on their usage of energy which is to be spent on public goods such as energy efficiency. The funds collected are then provided to a third party to provide energy efficiency programming. Furthermore, the charge can be used to create a clean energy fund.

ES-B: Encourage CO_2 Capture and Sequestration

Benefit/Cost of reducing CO_2e:
NM: 25.1 MMt between 2007-2020; 5.3% of 2020 emissions; $29/ton
MT: 11.1 MMt between 2007-2020; 5.6% of 2020 emissions; $30/ton

ES-15 Incentives for Advanced Fossil Fuel Technologies

Assessment: High Priority - Bin B

Advanced fossil technologies produce fewer CO_2 emission per kWh as the result of more efficient generating technologies (integrated gasification combined cycle, chilled ammonia scrubbing and oxy-fuel combination) and/or carbon capture and sequestration (CCS). Incentives may be in the form of direct subsidies, assistance in securing financing and cost recovery.

ES-13b Develop CO_2 Capture and Sequestration Policy

Assessment: High Priority - Bin B

Among the key questions to be addressed in the development of a consistent regulatory framework for CCS are: immunity from potentially applicable criminal and civil environmental penalties; property rights, including the passage of title to CO_2 (including to the government) during transportation, injection and storage; government-mandated caps on long term CO_2 liability; the licensing of CO_2 transportation and storage operators, intellectual property rights related to CCS, and monitoring of CO_2 storage facilities.

ES-13c Issues for CO_2 Transmission

Assessment: High Priority - Bin B

Pipelines are required to transport CO_2 to sites that can provide storage. Identify permitting and licensing issues to expedite transmission pipelines. Identify incentives for pipelines. Incentives may be in the form of direct subsidies, assistance in securing financing and/or off take agreements, or guarantee cost recovery.

ES-13a Research and Development

Assessment: High Priority - Bin B

The State can provide R&D funding toward sequestration technologies. A goal would be to be build an industry around that technology in the state and to set the stage for adoption of the technology for use in the state.

ES-C: Develop and Deploy Advanced Generation Technology

Benefit/Cost of reducing CO_2e:
NA

ES-15 Incentives for Advanced Fossil Fuel Technologies

Assessment: High Priority - Bin B
Advanced fossil technologies produce fewer CO_2 emission per kWh as the result of more efficient generating technologies (integrated gasification combined cycle, chilled ammonia scrubbing and oxy-fuel combination) and/or carbon capture and sequestration (CCS). Incentives may be in the form of direct subsidies, assistance in securing financing and cost recovery.

ES-9 Landfill Gas/Waste to Energy

Assessment: Low Priority – Bin B
Capture of methane gas from landfills to reduce direct emissions and to produce electricity. This option could be structured as either a mandate or an incentive program.

ES-45 Fuel Cell Development Incentives

Assessment: Low Priority – Bin B
The State could initiate R&D or incentives for fuel cell development. The goal would be to build an industry around this technology to benefit Utah's economy.

ES-D: Modify/Replace Existing Plants to Improve Efficiency/Reduce CO_2

Benefit/Cost of reducing CO_2e:
NM*: 24.3 MMt between 2007-2020; 3.7% of 2020 emissions; $21/ton
MT*: 11.1 MMt between 2007-2020; 1.8% of 2020 emissions; $20/ton
*GPS only

ES-24 Generation Performance Standards

Assessment: High Priority - Bin B
A generation performance standard (GPS) is a mandate that requires load servicing entities (LSE) to acquire electricity, or power plant developers to build and operate new generation, with a per-unit emission rate below a specified mandatory standard. In some cases, GHG offsets or credits can be used for compliance.

ES-20b Efficiency Improvements

Assessment: High Priority – Bin A
Efficiency improvements refer to increasing generation efficiency at power stations through incremental improvements at existing plants (e.g., more efficient boilers and turbines, improved control systems, or combined cycle technology).

ES-20c Fuel Switching

Assessment: Medium Priority – Bin D
Fuel switching refers to repowering plants by switching to lower or zero emitting fuels at existing plants or for new capacity additions. This can include co-firing biomass at coal plants or the use of natural gas in place of coal or oil. Policies to encourage repowering of existing plants could include incentives or regulations.

ES-20d Retrofit Plants w/CO_2 Capture

Assessment: High Priority – Bin C

ES-20e Retire Old Plant; Build New Low-Carbon Greenfield Plant

Assessment: High Priority – Bin B
Should include cost recovery of stranded investment.

ES-E: Promote Combined Heat and Power (CHP)–Distributed Generation (DG)

Benefit/Cost of reducing CO_2e:
NM: 6.1 MMt between 2007-2020; 0.8% of 2020 emissions; $4/ton
MT: 4.2 MMt between 2007-2020; 1.3% of 2020 emissions; $20/ton

ES-22 Incentives and Barrier Reductions for CHP and DG
Assessment: Medium Priority - Bin C

Barriers to CHP and clean DG include inadequate information, institutional barriers, high transaction costs because of small projects, high financing costs because of lender unfamiliarity and perceived risk, "split incentives" between building owners and tenants, and utility-related policies like interconnection requirement, high standby rates, and exit fees. The lack of standard offer or long-term contracts, payment at avoided cost levels, and lack of recognition for emissions reduction value provided also creates obstacles.

Policies to remove these barriers include: improved interconnection policies; improved rates and fees policies; streamlined permitting; recognition of the emission reduction value provided by CHP and clean DG; financing packages and bonding programs; power procurement policies; education and outreach.

ES-F: Improve Efficiency of Electric Transmission and Distribution System

Benefit/Cost of reducing CO_2e:
N/A

ES-29 Remove Transmission and other Barriers for Renewables and other Clean DG
Assessment: High Priority - Bin B

This is extremely important, especially for the development of clean energy. Improving the regulatory process for siting and permitting of new transmission lines is critical.

ES-36 Transmission System Upgrading
Assessment: High Priority - Bin B

Emissions from transmission systems include SF_6 emissions from insulators, and the emissions impacts of electricity losses from the lines.

ES-G: Reduce GHG Emissions associated w/energy extraction

Benefit/Cost of reducing CO_2e:
N/A

ES-19 GHG emissions reduction from fuel combustion in extraction operations
Assessment: Medium Priority - Bin D

ES-44 GHG Leakage reduction program
Assessment: Medium Priority - Bin D

ES-H Miscellaneous Energy Supply Options

Benefit/Cost of reducing CO_2e:
N/A

ES-7 Research and Development

Assessment: High Priority - Bin D

ES-32 Remove Utility Rate Barriers

Assessment: High Priority - Bin D

ES-3 Tax Credits and Incentives

Assessment: High Priority - Bin D